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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,335	11/13/2003	Albert Geiger	10191/3416	9869
26646	7590	04/20/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			MAI, LAM T	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/713,335

Applicant(s)

GEIGER ET AL.

Examiner

LAM T MAI

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,8 and 9 is/are rejected.
- 7) ☒ Claim(s) 3,5-7,10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beller (USP 5621518) and further in view of He et al (USP 6545627).

Regarding claims 1 and 8, Beller discloses in figure 1 an analog signal (output of elem. 102); an auxiliary signal (output of elem. 107) is superposed on the analog signal (col. 2, lines 53); an A/D converter for producing digital output; a digital processor (104) for determining a high resolution digital output values (see col. 3, lines 33-40; col. 4, lines 3-47; col. 6, lines 31-48)). Beller discloses an A/D converter with a sampling function (see col. 5, line 40) but Beller fails to disclose clearly a sampling and hold device in his A/D converter.

He discloses in figure 1 an improved A/D converter (140) for increasing the conversion time and accuracy that teaches a sample and hold device (110) and comparator (120) for converting sampled values (output of sample and hold circuit) (see col. 2, lines 29-37)

It would have been obvious to one having skill in the art at the time the invention was made to employ the improved A/D converter of He with the A/D converter taught by Beller for the purpose of performing the sample and hold operation and achieving high effective resolution output and faster in conversion time.

5. Regarding claims 2 and 9, Beller teaches an averaging the digital output values operation to improve signal resolution (col. 1, lines 57-58; col. 5, lines 15-18).

6. Regarding claim 4, Beller teaches the auxiliary signal includes a periodic signal (col. 3, lines 5-13).

Allowable Subject Matter

7. Claims 3 and 10 are objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest the high resolution digital values in determined from a ratio of one of those of the digital output values having a higher bit value and those of the digital output values having a lower bit values to a total number of the digital output values that were input.

8. Claim 5 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of

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the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest the auxiliary signal has a peak to peak amplitude that is greater than or equal to a resolution of a least significant bit of the digital output values.

9. Claim 6 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest the auxiliary signal includes one of a sine wave signal and a square wave signal.

10. Claim 7 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest a sampling frequency at which the superposed signal is sampled by the S/H device is selected in such a way that a beat is produced.

11. Claim 11 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest the device for superposing the auxiliary signal includes one of a capacitor and a current source.

Cited References

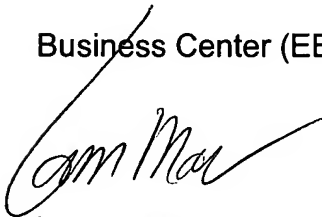
12. The prior art made of record and not relied upon is considered pertinent to application's disclosure. The cited references relate to analog to digital conversion with superposed input.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM T MAI whose telephone number is (571)272-1807. The examiner can normally be reached on 6:00 am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lam T. Mai
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